



DAX 420-IR

explosive or toxic
gas detector

$\text{CH}_4 - \text{C}_x\text{H}_y - \text{CO}_2 \dots$



- ✓ Principle: **INFRARED**
- ✓ Connection: 3 wires
- ✓ Output signal: 4..20 mA
- ✓ ATEX marking:  II 2G Ex d IIC T6
 II 2D Ex td A21 IP6x T85°C



DALEMANS
GAS DETECTION

THE BELGIAN PIONEER IN GAS DETECTION

DAX 420-IR

The **DAX 420-IR** detector was designed to continuously measure the presence of various gases in the air.

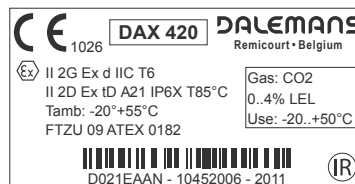
Its operating principle, **infrared**, gives it its major benefits:

- **very long lifetime,**
- **increased gas detection selectivity,**
- **immunity to poisons and,**
- **low maintenance cost.**



By connecting it to a Dalemans unit or to any other instrument that can receive a **4..20 mA signal**, you will benefit from a **highly flexible installation.**

To guarantee safety and performance, all gas detection installations must be calibrated and maintained regularly in accordance with the manufacturer's instructions.

ATEX certified, this detector is especially suitable for the **industrial sector, whose applications are located in an explosive atmosphere or exposed to risks of emissions of toxic gases such as CO₂.**



CHARACTERISTICS

Sensing head	Stainless steel 1.4404 (AISI 316L)
Sintered metal filter	Stainless steel 1.4404 (AISI 316L)
Junction box	Aluminium
Dimensions / Weight	170 x 145 x 90 mm / 1400 g
Sensor type	Infrared
Output signal	4..20 mA current loop (3-wires)
Setting	Zero and calibration by internal potentiometers
Accuracy	± 0.5 % full scale < 50 % LEL ± 1 % full scale > 50 % LEL
Response time (T90)	< 30 sec.
Lifetime	> 5 years
Voltage	19 - 30 Vdc
Consumption	Max 90 mA
Storage temperature	-20 °C to +50 °C
Operating conditions	
Temperature	-20 °C to +50 °C
Ambient humidity	0 - 95 % HR
Cable cross sectional area	0.75 - 2.5 mm ² (solid wires)
Max. cable length	1000 m
Loop resistance	50 - 750 ohms
Casing ingress protection	IP66
Cable entry	1 x M20 / 6,1 - 11,7 mm (other sizes on demand)
Hazardous areas	Zone 1 or 2 (gas) Zone 21 or 22 (dust)
Equipment gas grouping	IIC (methane, propane, ethylene, hydrogen, acetylene)
Standards	EN 60079-0:2006 EN 60079-1:2007 EN 61241-0:2006 EN 61241-1:2004
Approval (ATEX + IECEx)	 II 2G Ex d IIC T6  II 2D Ex tD A21 IP6X T85 °C
Certificate	FTZU 09 ATEX 0182

GASES CONCERNED

Gas	Formula	Density (air=1)	Measurement range	L.E.L. (% vol.)
			(% L.E.L.)	
Butane	C ₄ H ₁₀	2.05	0 - 100	1.40
Ethanol	C ₂ H ₆ O	1.59	0 - 100	3.10
Methane	CH ₄	0.55	0 - 100	4.40
Natural gas	-	0.68	0 - 100	-
Propane	C ₃ H ₈	1.56	0 - 100	1.70

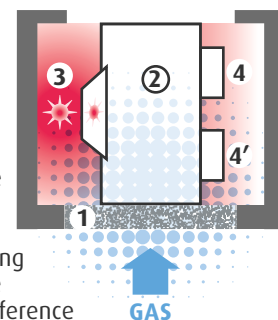
Measurement range (% vol.)				
Carbon dioxide	CO ₂	1.53	0 - 4	

Other gases and measurement ranges upon request.

INFRARED MEASUREMENT PRINCIPLE

The infrared cell functions according to the non-dispersive infrared (NDIR) principle. It is made up of a casing comprising:

- a diffusion membrane (1),
- a measurement chamber (2),
- an IR radiation source (3),
- an active sensor (4) and
- a reference sensor (4').



The gas that reaches the measurement chamber absorbs - within a very precise range of wavelengths - a part of the radiation emitted by the IR source. The active sensor measures the remaining IR radiation and thereby determines the concentration of the gas present. The reference sensor measures the IR radiation within a range of wavelengths that is not influenced by the incoming gas. Its signal serves to compensate any variation in IR radiation which is not due to absorption caused by the targeted gas, such as a variation in temperature, humidity level, etc.

This enables us to obtain an accurate and reliable measurement in all conditions.

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